

Abstract for the Applied Space Environments Conference (ASEC) in Huntsville, AL, May 15-19.

The MSFC Solar Activity Future Estimation (MSAFE) Model

Ron Suggs, Natural Environments Branch, NASA Marshall Space Flight Center, Huntsville, AL.

The Natural Environments Branch of the Engineering Directorate at Marshall Space Flight Center (MSFC) provides solar cycle forecasts for NASA space flight programs and the aerospace community. These forecasts provide future statistical estimates of sunspot number, solar radio 10.7 cm flux (F10.7), and the geomagnetic planetary index, Ap, for input to various space environment models. For example, many thermosphere density computer models used in spacecraft operations, orbital lifetime analysis, and the planning of future spacecraft missions require as inputs the F10.7 and Ap.

The solar forecast is updated each month by executing MSAFE using historical and the latest month's observed solar indices to provide estimates for the balance of the current solar cycle. The forecasted solar indices represent the 13-month smoothed values consisting of a best estimate value stated as a 50 percentile value along with approximate +/- 2 sigma values stated as 95 and 5 percentile statistical values. This presentation will give an overview of the MSAFE model and the forecast for the current solar cycle.